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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,905	03/11/2004	David William Mehaffy	AUS920030516US1	7027

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IBM CORPORATION- AUSTIN (JVL)
C/O VAN LEEUWEN & VAN LEEUWEN
PO BOX 90609
AUSTIN, TX 78709-0609

EXAMINER

YAARY, MICHAEL D

ART UNIT	PAPER NUMBER
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2193

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/798,905	Applicant(s) MEHAFFY ET AL.	
	Examiner Michael Yaary	Art Unit 2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. Claims 1-20 are pending in the application.

Claim Rejections - 35 USC § 101

2. As to claims 14-20 the claims are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

(i) Claim 14 is directed to software per se, not tangibly embodied, the computer program product failing to recite any hardware, or a processor to execute the claimed instructions. A suggested way to modify the claim would be in a format such as, "A computer program product, stored on a storage media, containing instructions that when executed by a processor provide:"

(ii) Claims 15-20 are rejected for similar reasons as discussed for their respective parent claims, as they fail to present any limitations that resolve the deficiencies of the claim from which they depend.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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- (i) As to claim 20 the claim is rejected under 35 U.S.C 112, second paragraph, as it is unclear if the claim's intent is for a method or a computer program product.
- (ii) Claim 20 is dependent on the "computer program product" of claim 6, when claim 6 is directed to a method and not a computer program product, thus making it unclear of the intent of the claim. Examiner is interpreting that the claim is meant to depend on claim 19 in order to follow suit with similar claims 7 and 13, as they both depend on their preceding claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4, 5, 8, 11, 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadjadi (US Pat. 6,850,938) in view of Alexander, III et al. (hereafter Alexander)(US Pat. 6,338,159).

6. **As to claims 1 and 14**, Sadjadi discloses receiving requests for a shared resource (column 6, lines 40-45), wherein access to the shared resource is controlled with a software lock (column 6, lines 40-52);
Detecting that the software lock is unavailable (column 7, lines 62-66).

7. Sadjadi does not disclose emitting an operating system trace hook in response to the detecting, wherein the operating system trace hook is adapted to record lock usage data, and analyzing the recorded lock usage data.

However, Alexander discloses emitting an operating system trace hook in response to the detecting, wherein the operating system trace hook is adapted to record lock usage data (Abstract; column 1, lines 29-54; and column 2, lines 35-60 disclose tracing in order to provide a performance profile, by logging event data. Thus, logging of data may be applied to functions, methods, system components, and locks.), and analyzing the recorded lock usage data (column 6, lines 50-65).

8. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Sadjadi, by recording, logging, and analyzing trace data, as taught by Alexander, in order to provide compact and efficient means of maintaining software and system performance.

9. **As to claim 8**, the claim is rejected for the same reasons as claims 1 and 14 above. In addition, Sadjadi discloses one or more processors (processor 404 of figure 4); a memory accessible by the processors (column 6, lines 17-18 and main memory 406 of figure 4.); one or more shared resources accessible by the processors (column 5, lines 29-31); a non volatile storage device accessible by the processors (column 15, lines 20-32 and storage device 410 of figure 4); one or more software locks, stored in

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the memory, for controlling access to the shared resources (column 5, lines 29-41); an operating system that controls a plurality of processes performed by the processors (Inherent in column 5, lines 29-41 and figure 4 as an operating system would be needed to control any of the functions performed by the processors); and Alexander discloses a trace hook facility (column 3, line 35-column 4, line 7).

10. **As to claims 4, 11, and 17** Sadjadi further discloses identifying one or more processes causing lock contention in response to the analysis of the lock usage data (column 9, lines 5-21).

11. **As to claims 5 and 18**, Sadjadi further discloses modifying the identified processes' usage of the shared resource (column 9, line 35-column 10, line 11).

12. Claims 2, 3, 9, 10, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadjadi and Alexander, as applied to claims 1, 8 and 14, above, and further in view of Joy et al. (hereafter Joy)(US Pat. 5,968,157).

13. **As to claims 2, 9, and 15**, Alexander discloses the lock usage data includes a timestamp corresponding to each request (column 1, lines 46-50 and column 4, lines 20-30) and a stack call chain for each process making one of the requests at the time the corresponding request was made (column 2, lines 28-34 and column 4, lines 8-18).

14. Sadjadi and Alexander do not disclose a lock address corresponding to an address of the software lock and a request count.

However, Joy discloses a lock address corresponding to an address of the software lock (column 1, lines 39-45 and column 3, lines 23-28) and a request count (column 1, lines 54-54 and column 3, lines 23-28).

15. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Sadjadi and Alexander, by incorporating lock address and request count, as taught by Joy, in order for the operating system to more efficiently keep track of locked objects.

16. **As to claims 3, 10, and 16**, Sadjadi further discloses receiving a lock release request from a process that currently holds the software lock (column 10, lines 17-20); determining whether other processes are currently waiting for the software lock (column 1, lines 39-64); releasing the software lock in response to determining that other processes are currently waiting for the software lock (column 1, lines 39-64); and releasing the software lock without emitting a trace hook in response to determining that the other processes are not waiting for the software lock (column 1, lines 45-57), and Alexander discloses emitting a second operating system trace hook, wherein the second operating system trace hook is also adapted to record lock usage data (column 3, line 63-column 4, line 7).

17. Claims 6, 7, 12, 13, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadjadi and Alexander as applied to claims 1, 8, and 14 above, and further in view of Joy and Barton (US Pat. 5,502,840).

18. **As to claims 6, 12, and 19**, Sadjadi further discloses detecting that the software lock is available in response to receiving the request (column 7, lines 62-65), and Joy discloses incrementing a lock counter that tracks the number of times the shared resource was requested (column 1, lines 54-64).

19. Sadjadi, Alexander, and Joy do not disclose setting ownership of the software lock to an identifier corresponding to an identifier of the requesting process.

However, Barton discloses setting ownership of the software lock to an identifier corresponding to an identifier of the requesting process (column 2, line 50-column 3, line 7).

20. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Sadjadi, Alexander, and Joy, by setting ownership of a lock to the corresponding requesting process, as taught by Barton, for the benefit of reducing wait time for an unavailable lock.

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21. **As to claims 7, 13, and 20**, Barton discloses requesting that a lock ownership field of the software lock be set to the requesting process identifier (column 4, lines 19-53); and receiving a completion code indicating that the ownership has been set, wherein the incrementing of the lock counter is performed in parallel with the setting ownership by incrementing the lock counter after the request for the lock ownership field has been set and before the completion code has been received (column 4, lines 39-43).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Yaary whose telephone number is (571) 270-1249. The examiner can normally be reached on Monday-Friday, 8:00 a.m - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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MY


MENG-AI T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100